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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/069,404	05/06/2002	Takeshi Uchida	566.41259X00	3597

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EXAMINER

UMEZ ERONINI, LYNETTE T

ART UNIT	PAPER NUMBER
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1765

DATE MAILED: 03/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

C14

Office Action Summary	Application No. 10/069,404	Applicant(s) UCHIDA ET AL.	
	Examiner Lynette T. Umez-Eronini	Art Unit 1765	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 January 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 33 and 35 is/are allowed.
- 6) ☒ Claim(s) 1-32 and 34 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>9/22/06 & 3/13/06</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement filed 3/13/2006 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

Reference **JP 337465 B2** was not provided.

2. The information disclosure statement filed 3/13/2006 fails to comply with the provisions of 37 CFR 1.97, 1.98 and MPEP § 609 because Non-Patent literature, Supplementary European Search Report lacks date and year of publication. It has been placed in the application file, but the information referred to therein has not been considered as to the merits. Applicant is advised that the date of any re-submission of any item of information contained in this information disclosure statement or the submission of any missing element(s) will be the date of submission for purposes of determining compliance with the requirements based on the time of filing the statement, including all certification requirements for statements under 37 CFR 1.97(e). See MPEP § 609.05(a).

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, and 4-9, 11-18, 19, 22-32, and 34 are rejected under 35 U.S.C. 102(e) as being anticipated by Kondo et al. (US PG PUB 2002/0016073 A1).

Kondo teaches a polishing solution that contains an oxidizer [0019], phosphoric acid, organic acid [0032], a chemical to form inhibition layer [0036-0041], and water (Abstract). Kondo teaches mixing an anti-corrosive agent and surfactant or anti-corrosive agent and thickener, for example, mixing polyacrylic acid or ammonium salt and cetyl pyridinium to form the inhibition layer, which would increase the polishing rate [0044 and 0047].

Hence, the aforementioned reads on,

A polishing medium for chemical mechanical polishing, comprising an oxidizing agent, a metal-oxide dissolving agent, a protective-film forming agent, a water-soluble polymer, excluding poly(oxoethylene) lauryl ether, polyvinyl alcohol, gelatin and carboxymethylcellulose, and water, in claims 1, 27 and 34;

wherein said oxidizing agent is at least one of hydrogen peroxide, nitric acid, and hypochlorous acid, **in claim 7**;

wherein said metal-oxide dissolving agent is at least one of an organic acid, **in claim 8**;

wherein said protective-film forming agent is a nitrogen-containing compound, **in claims 9 and 30-32**;

a polishing method comprising polishing a polishing object film of a metal with the polishing medium for chemical mechanical polishing according to claim 1, **in claim 11**;

wherein said polishing object film comprises at least one of copper, a copper alloy, a copper oxide and a copper alloy oxide, **in claim 12**;

wherein said water-soluble polymer is selected from the group consisting of polysaccharides, polycarboxylic acids and esters and salts thereof, and vinyl polymers excluding polyvinyl alcohol, **in claims 18 and 28**; and

wherein said water-soluble polymer is selected from the group consisting of peptic acid, agar, polymalic acid, polymethacrylic acid, polyacrylic acid, polyacrylamide, and polyvinyl pyrrolidone, and esters and ammonium salts thereof, **in claim 19 and 29**.

Since Kondo teaches examples of compounds that comprises the same chemicals as applicant's polishing medium, then using Kondo's polishing compounds in the same manner as the claimed invention would result wherein the polishing medium has a coefficient of kinetic friction of 0.25 or more, **in claims 4 and 13**, 0.35 or more, **in claim 22**, and 0.45 or more, **in claim 23**; an Ubbelode's viscosity of 0.95 mPa's (0.95 cP) or more and 1.5 mPa's (1.5 cP) or less, **in claims 5, 14, and 16**, of 0.96 mPa's to

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1.3 mPa's, **in claim 24**, and of 0.97 to 1.0 mPa's, **in claim 25**; and a point-of-inflection pressure of 5 kPa (50 gf/cm²) or more, **in claims 6, 15, and 17** and of 10 kPa (50 gf/cm²) or more, **in claim 26**.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kondo (US '073 A1) as applied to claim 27 above, and further in view of Sasaki et al. (US 5,770,095).

Kondo differs in failing to teach wherein said protective-film-forming agent is at least one of a mercaptan, glucose and cellulose.

Sasaki discloses a cmp composition comprising a chemical agent at is capable of forming a chelate compound or a complex with the film material that includes glucose (column 8, lines 20-29) and which is responsible for forming a protection film on the surface of the substrate to be polished by reacting with the material containing a metal as a main component (column 2, lines 7-16).

Sasaki illustrates a polishing composition comprising glucose, an example of a protecting film is known. Hence, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Kondo by using a protective-film (forming) agent as taught by Sasaki for the purpose of providing a polishing agent capable of forming a highly reliable conductive film at a high polishing rate while suppressing the occurrence of dishing (column 1, lines 58-63).

Allowable Subject Matter

8. Claims 33 and 35 are allowed.
9. The following is a statement of reasons for the indication of allowable subject matter:

As to claim 33, the prior art of record taken alone or in combination fails to suggest, teach, or render obvious a polishing medium for chemical-mechanical polishing, comprising an oxidizing agent, a protective-film-forming agent, a water-soluble polymer and water, wherein the water-soluble polymer is at least one selected from the group consisting of alginic acid, pectic acid, agar, curdian and pullulan; and

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As to claim 35, the prior art of record taken alone or in combination fails to suggest, teach, or render obvious a polishing medium for chemical-mechanical polishing, comprising an oxidizing agent, a protective-film-forming agent, a water-soluble polymer and water, wherein the water-soluble polymer is at least one selected from the group consisting of polyvinyl pyrrolidone and polyacrolein.

Response to Arguments

10. Applicant's arguments with respect to claims 1-32 have been considered but are moot in view of the new ground(s) of rejection because the amended feature in base claim 27, and (Currently amended) claim 18, 19, 28, and 29 to exclude poly(oxoethylene) lauryl ether, polyvinyl alcohol, gelatin and carboxymethylcellulose from a polishing medium, was not taught by the former prior art of record.

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lynette T. Umez-Eronini whose telephone number is 571-272-1470. The examiner is normally unavailable on the First Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine Norton can be reached on 571-272-1465. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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March 16, 2006



SHAMIM AHMED
PRIMARY EXAMINER